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Claims

1. Microwave heating system comprising a plurality of microwave applicators (28) for heating loads arranged in said applicators, a control means (8), one microwave generator (16) to generate microwave energy having a  
5 controllable frequency and power level, and a microwave switch (26) arranged to connect said microwave generator to each of said applicators, characterized in that each microwave applicator is dedicated a heating time slot in a time frame, and that said time frame comprises time slots for loads in applicators to be heated, wherein during microwave heating, microwave  
10 energy is applied to said microwave applicators in its respective time slot, in consecutive time frames.

2. Microwave heating system according to claim 1, characterized in that said microwave energy is coupled to the  
15 respective microwave applicator by said microwave switch in accordance with time slot control signals from said control means.

3. Microwave heating system according to claim 1, characterized in that within each time slot the microwave energy is  
20 optimised with regard to frequency and power level, by said control means, to the load to be heated by the applicator dedicated to that time slot.

4. Microwave heating system according to claim 3, characterized in that the microwave system further comprises an  
25 attenuator means (18) and a power amplifier (20), wherein said attenuator means and power amplifier are controlled by said control means in order to achieve said optimised microwave energy.

5. Microwave heating system according to claim 1, characterized in that said microwave switch is controlled by said  
30 control means to couple the microwave generator to a specified microwave applicator during the time slot dedicated to that specified microwave applicator.

6. Microwave heating system according to claim 1,

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characterized in that a heating time slot has an adjustable time slot duration.

7. Microwave heating system according to claim 1,  
5 characterized in that all time slots within a time frame have individually adjustable time slot durations.

8. Microwave heating system according to claim 1,  
characterized in that all time slots within a time frame have the same  
10 time slot duration.

9. Microwave heating system according to claim 1,  
characterized in that a heating time slot is divided into a sequence of  
time intervals comprising a ramp up time interval, a max output time interval  
15 and a ramp down time interval.

10. Microwave heating system according to claim 1,  
characterized in that said microwave applicators are arranged in a  
microwave applicator matrix.  
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11. Microwave heating system according to any preceding claim,  
characterized in that said load is a chemical reaction mixture.

12. Microwave heating arrangement characterized in that it  
25 comprises a number of microwave heating systems according to any preceding claim.

13. Method in a microwave heating system according to any of claims 1-  
11 or in a microwave heating arrangement according to claim 12 for heating  
30 loads in microwave applicators by applying microwave energy to the applicators;  
characterized in that the system is provided with heating time slots in  
a time frame, where each time slot is dedicated to a specific microwave  
applicator with a load, the method comprises the step of:  
i) applying microwave energy to each applicator in each applicator's

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respective time slot during consecutive time frames.

14. Method according to claim 13, characterized in that the method comprises a further step performed prior to step i):

5 ii) optimising the microwave energy to be applied to each microwave applicator within each applicator's respective time slot.

15. Method according to claim 14, characterized in that step ii) is performed by changing the frequency of the applied microwave energy within  
10 time slot until minimum reflected energy is detected.

16. Method according to any of claims 13-15, characterized in that load is chemical reaction mixture.

15 17. Use of a microwave heating system or a microwave heating arrangement according to any of claims 1-12 for performing chemical reactions and especially for organic synthesis reactions.

18. Use of a method according to any of claims 13-16 for performing  
20 chemical reactions and especially for organic synthesis reactions.